IN THE CLAIMS AMEND

1. An optical system, in particular projection exposure system for microlighography, in particular having a slot-shaped image field or non-rotational-symmetric illumination,

a) having an optical element comprising at least one chamber that is sealed from atmospheric pressure and is enclosed by boundary surfaces and that has a fluid filling, wherein at least one of the boundary surfaces is exposed at least partially by illumination light;

b) having a fluid source that has a fluid connection to the chamber via a fluid supply line; and

c) having a control device for the pressure of the liquid filling;

wherein

the at least one enclosed chamber is configured in such a way that a change in the fluid pressure inside the at least one chamber results in a change in non-rotational-symmetric imaging properties of the optical element that have an n-fold symmetry relative to the optical axis of the optical element, where n is greater than 1.

2. The optical system as claimed in claim 1, wherein a change in the fluid pressure inside the at least one chamber results in a change in the astigmatic imaging properties of the optical element.

3. The optical system as claimed in claim 1, wherein at least that region of the surfaces forming the boundary of the chamber that is irradiated by illumination light is at least partially formed

by an elastically deformable material, the edge contour of the elastically deformable region being non-rotational-symmetric.

4. The optical system according to claim 3, wherein the edge contour has an n-fold symmetry relative to the optical axis of the optical element, where n is greater than 1.

5. The optical system as claimed in claim 4, wherein the edge contour is elliptically shaped.

7. The optical system according to claim 3, characterized in that the elastically deformable optical medium is held in its edge region by a holding device, the shape of the holding surface with which the optical medium is in contact with the holding device imposes the edge contour of the elastically deformable surface region.

8. The optical system as claimed in claim 7, wherein the optical medium is a pellicle.

12. The optical system as claimed in claim 1, wherein at least one region of a surface of the surfaces forming the boundary of the chamber is irradiated by illumination light and is formed by at least one rigid optical surface having different curvature in mutually perpendicular planes.

13. The optical system as claimed in claim 12, wherein the optical element is formed from a combination of at least two optical components that each comprise at least one chamber that is sealed from atmospheric pressure and is enclosed by boundary surfaces, that has a liquid

filling and that is irradiated by illumination light, the optical components having, at least in the region of one surface of the surfaces forming the boundary of the respective chambers in each case at least one optical surface having different curvature in mutually perpendicular planes; and wherein an independent control of the pressure of the liquid filling in the chambers assigned to the optical components is ensured by means of a control device.

14. The optical system as claimed in claim 13, wherein the optical element is designed so that, given equal pressure in the fluid filling in the chambers assigned to the optical components it has essentially rotational-symmetric imaging properties.

15. The optical system as claimed in claim 12, wherein the optical element is designed so that, given equal pressure in the fluid filling in the chambers assigned to the optical components, it has astigmatic imaging properties.

16. The optical system as claimed in one of claims 12, wherein the optical surface having different curvature in mutually perpendicular planes is a surface of a cylindrical lens.

17. The optical system as claimed in claim 16, wherein the cylindrical lens is a plano-convex cylindrical lens.

18. The optical system as claimed in claim 1, wherein the control device has a signal connection to a sensor arrangement that monitors the imaging properties of the optical element and/or the optical system, the control device impressing a pressure in the fluid filling as a function

of the transmitted signal data of the sensor arrangement.

19. The optical system as claimed in claim 18, wherein the sensor arrangement has a position-sensitive sensor.

20. The optical system as claimed in claim 19, wherein the position-sensitive sensor is a CCD array.

21. The optical system as claimed in claim 1, wherein the control device is designed so that it is capable of producing both underpressures and overpressures.